

LISTING OF THE CLAIMS:

Please replace all of the pending claims in the application with the following complete set of claims. No amendments have been made to the claims in this paper.

In accordance with 37 C.F.R. § 1.173(d), editing marks (underlining for added text and bracketing for omitted text) have been used to show any variations between these claims and the claims originally present in the patent from which reissue is sought (5,792,573).

1. A rechargeable battery adapted to be repeatably and releasably attached to an orthopedic drive assembly, the orthopedic drive assembly having elongate drive and handle portions, a battery receiving portion having a pair of tracks defining flanges, a pair of battery terminals, and a blocking member movable between latched and release positions;

said battery comprising:

an autoclavable battery housing having top and bottom portions, at least one cell within the battery housing and a pair of battery contacts adjacent the top portion of the housing and situated to engage the battery terminals of the orthopedic drive assembly,

releasable attachment means for releasably attaching the battery to the battery receiving portion in a direction other than the direction of elongation of the handle portion,

said releasable attachment means comprising:

- a) the battery having a pair of grooves adapted to receive the flanges of the tracks, and
- b) a slot for receiving the blocking member when the blocking member is in the latched position.

2. A rechargeable battery according to claim 1 wherein each of the battery terminals comprise a substantially flat plate member having opposite side surfaces, and

each of said battery contacts comprise a pair of flexible, resilient arcuate members which are adapted to engage opposite side surfaces of a battery terminal.

3. A rechargeable battery according to claim 1 wherein said battery contacts each include a first end fixedly attached to said top portion of said battery housing and a second end adapted to abut a support shoulder of the top portion of the battery housing.

4. A rechargeable battery according to claim 1 wherein said battery housing comprises opposite, substantially flat front and rear walls constructed from a material suitable for protecting the cell(s) during an autoclave procedure,

said battery comprises eight substantially cylindrical cells having longitudinal axes, said eight cylindrical cells being arranged in:

- a) a front row of three cells substantially adjacent said front wall within the battery housing,
- b) a rear row of three cells substantially adjacent said rear wall within the battery housing, and
- c) a middle row of two cells between said front and rear rows wherein all eight cells are within the battery housing.

5. A rechargeable battery according to claim 1 wherein the slot is sized and shaped to engage the blocking member to lock the battery to the battery receiving portion when the blocking member is in the latched position.

6. A rechargeable battery according to claim 1 wherein the battery further includes means for automatically moving the blocking member from the latched toward the release position as the battery is mounted to the battery receiving portion.

7. A rechargeable battery according to claim 6 wherein the means for automatically moving the blocking member comprises a ramped surface on the top portion of the battery housing.

8. A rechargeable battery adapted to be repeatably and releasably attached to an orthopedic drive assembly, the orthopedic drive assembly having elongate drive and handle portions, a battery receiving portion having a pair of tracks defining flanges, a pair of battery terminals, and a blocking member movable between latched and release positions;

said battery comprising a battery housing having top and bottom portions, at least one cell within the battery housing, and a pair of battery contacts adjacent the top portion of the housing and situated to engage the battery terminals of the orthopedic drive assembly when the battery is fully received by the orthopedic drive assembly,

releasable attachment means for releasably attaching the battery to the battery receiving portion, said releasable attachment means comprising:

- a) the battery having a pair of grooves adapted to receive the flanges of the tracks,
and
- b) a slot for receiving the blocking member when the blocking member is in the latched position, wherein the slot is sized and shaped to engage the blocking member to lock the battery to the battery receiving portion when the blocking member is in the latched position.

9. A rechargeable battery according to claim 8 wherein the battery further includes means for automatically moving the blocking member from the latched toward the release position as the battery is mounted to the battery receiving portion.

10. A rechargeable battery according to claim 9 wherein the means for automatically moving the blocking member comprises a ramped surface on the top portion of the battery housing.

11. A rechargeable battery according to claim 8 wherein each of the battery terminals comprise a substantially flat plate member having opposite side surfaces, and

each of said battery contacts comprise a pair of flexible, resilient arcuate members which are adapted to engage opposite side surfaces of a battery terminal.

12. A rechargeable battery according to claim 8 wherein said battery contacts each include a first end fixedly attached to said top portion of said battery housing and a second end adapted to abut a support shoulder of the top portion of the battery housing.

13. A rechargeable battery adapted to be repeatably and releasably attached to a drive assembly; the drive assembly having (i) an electric motor, (ii) battery terminals, (iii) an elongate handgrip portion, and (iv) a battery receiving portion attached to a bottom end of the handgrip portion;

said battery comprising:

a battery housing, at least one cell within the battery housing and battery contacts adjacent the housing and situated to engage the battery terminals of the drive assembly;

one of the drive assembly and the battery having a pair of tracks defining flanges;
and

the other of the drive assembly and the battery having grooves configured to receive the flanges of the tracks;

wherein the battery may be repeatably and releasably attached to the drive assembly by sliding the battery into and out of engagement with the drive assembly and a longitudinal axis of the handgrip portion intersects the battery receiving portion and the battery housing when the battery is attached to the drive assembly; and

wherein the handgrip portion does not house any part of the battery or the electric motor when the battery is attached to the drive assembly.

14. A rechargeable battery according to claim 13, wherein the drive assembly further includes a blocking member movable between a latched and release position.

15. A rechargeable battery according to claim 14, wherein said battery further comprises:

a) a slot for receiving the blocking member when the blocking member is in the latched position.

16. A rechargeable battery according to claim 15, wherein the slot is sized and shaped to engage the blocking member to lock the battery to the battery receiving portion when the blocking member is in the latched position.

17. A rechargeable battery according to claim 14, wherein said battery further comprises means for automatically moving the blocking member from the latched toward the release position as the battery is mounted to the battery receiving portion.

18. A rechargeable battery according to claim 17, wherein the battery housing has top and bottom portions and the means for automatically moving the blocking member comprises a ramped surface on the top portion of the battery housing.

19. A rechargeable battery according to claim 13, wherein each of the battery terminals comprise a substantially flat plate member having opposite side surfaces, and

each of said battery contacts comprise a pair of flexible, resilient arcuate members which are adapted to engage opposite side surfaces of a battery terminal.

20. A rechargeable battery according to claim 13, wherein the battery housing has top and bottom portions and said battery contacts each include a first end fixedly attached to said top portion of said battery housing and a second end adapted to abut a support shoulder of the top portion of the battery housing.

21. A rechargeable battery adapted to be repeatably and releasably attached to a drive assembly; the drive assembly having (i) elongate drive and (ii) elongate handgrip portions, (iii) an electric motor, (iv) a battery receiving portion attached to a bottom end of the handgrip portion having a pair of tracks defining flanges, and (v) battery terminals;

said battery comprising:

a battery housing having top and bottom portions, at least one cell within the battery housing and battery contacts adjacent the top portion of the housing and situated to engage the battery terminals of the drive assembly, and

releasable attachment means for releasably attaching the battery to the battery receiving portion in a direction other than the direction of elongation of the handgrip portion;

wherein a longitudinal axis of the handgrip portion intersects the battery receiving portion and the battery housing when the battery is attached to the drive assembly; and

wherein the handgrip portion does not house any part of the battery or the electric motor when the battery is attached to the drive assembly.

22. A rechargeable battery according to claim 21, wherein the drive assembly further includes a blocking member movable between a latched and release position.

23. A rechargeable battery according to claim 22, wherein said releasable attachment means comprises:

a) the battery having a pair of grooves adapted to receive the flanges of the tracks, and

b) a slot for receiving the blocking member when the blocking member is in the latched position.

24. A rechargeable battery according to claim 23, wherein the slot is sized and shaped to engage the blocking member to lock the battery to the battery receiving portion when the blocking member is in the latched position.

25. A rechargeable battery according to claim 22, wherein the battery further includes means for automatically moving the blocking member from the latched toward the release position as the battery is mounted to the battery receiving portion.

26. A rechargeable battery according to claim 25, wherein the means for automatically moving the blocking member comprises a ramped surface on the top portion of the battery housing.

27. A rechargeable battery according to claim 21, wherein each of the battery terminals comprise a substantially flat plate member having opposite side surfaces, and

each of said battery contacts comprise of a pair of flexible, resilient arcuate members which are adapted to engage opposite side surfaces of a battery terminal.

28. A rechargeable battery according to claim 21, wherein said battery contacts each include a first end fixedly attached to said top portion of said battery housing and a second end adapted to abut a support shoulder of the top portion of the battery housing.

29. A rechargeable battery adapted to be repeatably and releasably attached to an orthopedic drive assembly; the orthopedic drive assembly having (i) elongate drive and (ii) elongate handgrip portions, (iii) a battery receiving portion having a pair of tracks defining flanges, (iv) an electric motor, and (v) battery terminals;

said battery comprising:

a battery housing having top and bottom portions, at least one cell within the battery housing and battery contacts adjacent the top portion of the housing and situated to engage the battery terminals of the orthopedic drive assembly, and

releasable attachment means for releasably attaching the battery to the battery receiving portion in a direction other than the direction of elongation of the handgrip portion;

wherein the handgrip portion does not house any part of the battery when the battery is attached to the drive assembly.

30. A rechargeable battery according to the claim 29, wherein the drive assembly further includes a blocking member movable between a latched and release position.

31. A rechargeable battery according to claim 30, wherein said battery further comprises means for automatically moving the blocking member from the latched toward the release position as the battery is mounted to the battery receiving portion.

32. A rechargeable battery according to claim 31, wherein the means for automatically moving the blocking member comprises a ramped surface on the top portion of the battery housing.

33. A rechargeable battery according to claim 29, wherein each of the battery terminals comprise a substantially flat plate member having opposite side surfaces, and

each of said battery contacts comprise a pair of flexible, resilient arcuate members which are adapted to engage opposite side surfaces of a battery terminal.

34. A rechargeable battery according to claim 29, wherein said battery contacts each include a first end fixedly attached to said top portion of said battery housing and a second end adapted to abut a support shoulder of the top portion of the battery housing.

35. A rechargeable battery according to claim 29, wherein said battery housing comprises opposite, substantially flat front and rear walls constructed from a material suitable for protecting the cell(s) during an autoclave procedure,

said battery comprises eight substantially cylindrical cells having longitudinal axes, said eight cylindrical cells being arranged in:

a) a front row of three cells substantially adjacent said front wall within the battery housing,

b) a rear row of three cells substantially adjacent said rear wall within the battery housing, and

e) a middle row of two cells between said front and rear rows wherein all eight cells are within the battery housing.

36. The rechargeable battery according to claim 13 wherein the pair of tracks defining flanges comprises a left flange, and a right flange, and the left flange and the right flange are substantially identical.

37. The rechargeable battery according to claim 13 wherein the grooves comprises a left groove, and a right groove, and the left groove and the right groove are substantially identical.

38. The rechargeable battery according to claim 13 wherein the battery contacts are laterally aligned.

39. The rechargeable battery according to claim 15 wherein the battery housing has top and bottom portions and the slot is formed in the top portion of the battery housing.

40. A rechargeable battery according to claim 13 wherein the drive assembly is an orthopedic drive assembly adapted to power an orthopedic surgical tool.

41. (Cancelled)

42. A rechargeable battery according to claim 13 wherein a drill chuck is powered by the drive assembly.

43. A rechargeable battery according to claim 21 wherein said releasable attachment means comprises:

a battery having a pair of grooves adapted to receive the flanges of the tracks whereby, as said battery is attached to said battery receiving portion, said flanges slidably engage said grooves and constrain motion of said battery along a path defined by said slidably engaged flanges and grooves.

44. A rechargeable battery according to claim 43 further comprising latching means comprising:

a blocking member for preventing disengaging movement between said flanges and grooves;

means to enable said blocking member to be selectively reciprocated, in a direction parallel to the direction of elongation of said handgrip portion, between a latched position and an unlatched position, said blocking member, when in said latched position, extending into said path of said battery as said battery is engaged with said drive assembly and, when in said unlatched position, not extending into said path;

an opening adapted to receive and cooperate with said blocking member, when said blocking member is in said latched position, to receive said blocking member and prevent disengagement movement of said battery along said flanges of the tracks;

ramp means associated with said battery to move said blocking member temporarily from said latched position to said unlatched position as said battery is engaged with said drive assembly, said ramp means terminating at a predetermined point to enable said blocking member to return to said latched position and engage said opening.

45. A rechargeable battery according to claim 44 further comprising biasing means to normally bias said blocking member into said latched position.

46. A rechargeable battery according to claim 44 wherein said blocking member is movably affixed to said drive assembly and said opening is situated within said battery.

47. A rechargeable battery adapted to be repeatably and releasably attached to a powered device, the powered device including a housing, the housing having (i) an electric motor associated therewith, (ii) one of a pair of flanges or a pair of mounting grooves, and (iii) a negative battery terminal and a positive battery terminal electrically associated with the electric motor through a power switch, the negative battery terminal and the positive battery terminal each comprising a flat plate member having first and second opposite exposed side surfaces, the rechargeable battery comprising:

a battery casing having a top portion and a bottom portion;

at least one rechargeable battery cell housed inside of the battery casing;

a negative battery contact and a positive battery contact associated with the battery casing, the at least one rechargeable battery cell being electrically connected to the negative battery contact and the positive battery contact;

the negative battery contact comprising first and second resilient deflecting members, the first resilient deflecting member adapted to contact the first side surface of the negative battery terminal and the second resilient deflecting member adapted to contact the second side surface of the negative battery terminal when the battery is mounted to the housing;

the positive battery contact comprising first and second resilient deflecting members, the first resilient deflecting member adapted to contact the first side surface of the positive battery terminal and the second resilient deflecting member adapted to contact the second side surface of the positive battery terminal when the battery is mounted to the housing;

an other of a pair of flanges or a pair of mounting grooves formed on the battery casing, the other of a pair of flanges or a pair of mounting grooves being at least one-third the length of the top portion of the battery casing; and

wherein the rechargeable battery is adapted to be repeatably and releasably attached to the housing by sliding the pair of flanges into the pair of mounting grooves in a direction of sliding that is generally parallel with a generally flat bottom surface of the bottom portion of the battery casing.

48. The rechargeable battery of claim 47 further comprising:

a slot formed in the battery casing adapted to receive a blocking member mounted on the housing for releasably securing the rechargeable battery on the housing.

49. The rechargeable battery of claim 48 wherein the slot is formed on the top portion and the other of a pair of flanges or a pair of mounting grooves is formed on the top portion.

50. The rechargeable battery of claim 47 wherein the at least one rechargeable battery cell comprises at least five series electrically connected, individual, rechargeable, cylindrical battery cells arranged in a plurality of rows and housed inside of the battery casing.

51. The rechargeable battery of claim 50 wherein the battery casing comprises two halves joined together, and each of the halves forms approximately a half of the top portion and approximately a half of the bottom portion.

52. The combination of the rechargeable battery of claim 47 and a powered device comprising a housing having an electric motor disposed therein, one of a pair of flanges or a pair of mounting grooves, and a negative battery terminal and a positive battery terminal each electrically connected to the electric motor, the negative battery terminal and the positive battery terminal each comprising a flat plate member having first and second opposite exposed side surfaces.

53. The combination of claim 52 wherein the powered device is an orthopedic drive assembly.

54. The combination of claim 52 wherein the at least one rechargeable battery cell comprises at least five series electrically connected, individual, rechargeable, cylindrical battery cells arranged in a plurality of rows and housed inside of the battery casing.

55. The combination of claim 52 wherein the housing comprises a handgrip portion with a direction of elongation and the one of a pair of flanges or a pair of mounting grooves of the housing is not generally parallel to the direction of elongation.

56. The combination of claim 52 wherein the other of a pair of flanges or a pair of mounting grooves of the battery casing is at least one-half the length of the top portion of the battery casing.

57. The combination of claim 52 wherein the pair of mounting grooves is a pair of parallel mounting grooves, and the pair of flanges is a pair of parallel flanges.

58. The combination of claim 52 further comprising:

a slot formed in the battery casing which receives a blocking member mounted on the housing for releasably securing the rechargeable battery on the housing.

59. The combination of claim 58 wherein the slot is formed on the top portion and the other of a pair of flanges or a pair of mounting grooves of the battery casing is formed on the top portion.

60. The combination of claim 52 wherein when the rechargeable battery is mounted on the housing, a majority of the top portion is covered by the housing, and side portions of the battery casing and the bottom portion are not covered by the housing.

61. The combination of claim 60 wherein a drill chuck is operatively connected to the electric motor to drive a drill.

62. The combination of claim 60 wherein the battery casing comprises two halves joined together, and each of the halves forms approximately a half of the top portion and approximately a half of the bottom portion.

63. A powered device with a detachable, rechargeable battery comprising:

a housing having an electric motor associated therewith, an elongate handgrip portion, and a battery receiving portion attached to a bottom end of the handgrip portion, the battery receiving portion including battery terminals, the battery terminals being electrically connected to the electric motor via a power switch for delivering electric power to the electric motor;

a battery comprising a battery casing, at least one rechargeable battery cell housed inside of the battery casing, and battery contacts adapted to contact the battery terminals

- formed on the housing when the battery is attached to the housing, the at least one rechargeable battery cell being electrically connected to the battery contacts; and
- wherein one of the housing or the battery casing has a pair of flanges formed thereon, and the other of the housing or the battery casing has a pair of mounting grooves formed thereon which engage the pair of flanges in a direction of engagement other than the general direction of elongation of the handgrip portion when the battery is mounted to the housing; and
- wherein the handgrip portion does not house any part of the electric motor or the battery.
64. The tool of claim 63 wherein the housing is part of an orthopedic drive assembly.
65. The tool of claim 63 wherein a drill chuck is operatively connected to the electric motor to drive a drill.
66. The tool of claim 65 wherein the drill is an orthopedic, surgical drill.
67. The tool of claim 63 further comprising means for releasably securing the battery to the battery receiving portion.
68. The tool of claim 63 wherein the at least one rechargeable battery cell comprises: at least five series electrically connected, individual, rechargeable, cylindrical battery cells arranged in a plurality of rows and housed inside of the battery casing; and the pair of flanges or the pair of mounting grooves that is formed on the battery casing is at least one-third the length of a top portion of the battery casing.
69. The tool of claim 68 wherein the battery casing comprises two halves joined together, and each of the halves forms approximately a half of a top portion of the battery casing and a half of a bottom portion of the battery casing.
70. The tool of claim 68 wherein the pair of flanges is a pair of parallel flanges, and the pair of mounting grooves is a pair of parallel mounting grooves.

71. A combination of a powered tool and a rechargeable battery adapted to be repeatedly and releasably attached to the powered tool, the combination comprising:

a housing having:

an electric motor associated therewith;

a blocking member mounted to the housing and movable relative to the housing;

a negative battery terminal and a positive battery terminal electrically associated with the electric motor through a power switch;

a rechargeable battery having:

a battery casing with a top portion and a bottom portion;

a slot formed in the top portion of the battery casing adapted to receive the blocking member for releasably securing the rechargeable battery to the housing;

at least one rechargeable battery cell housed inside of the battery casing;

a negative battery contact and a positive battery contact adapted to contact the negative battery terminal and the positive battery terminal, respectively, of the housing, the at least one rechargeable battery cell being electrically connected to the negative battery contact and the positive battery contact;

wherein one of the housing or the top portion of the battery casing has a pair of flanges formed thereon, and the other of the housing or the top portion of the battery casing has a pair of mounting grooves formed thereon which engage the pair of flanges when the rechargeable battery is mounted to the housing, the pair of mounting grooves or the pair of flanges that is formed on the top portion of the battery casing being at least one-third the length of the top portion of the battery casing, the negative battery contact and the positive battery contact being

positioned between the pair of flanges or the pair of grooves formed on the top portion of the battery casing; and

wherein the pair of flanges engages the pair of mounting grooves by respective flanges sliding inside respective grooves in a direction of sliding that is generally parallel with a generally flat bottom surface of the bottom portion of the battery casing.

72. The combination of claim 99 wherein the pair of mounting grooves or the pair of flanges that is formed on the top portion of the battery casing is at least one-half the length of the top portion of the battery casing.

73. The combination of claim 99 wherein the pair of mounting grooves is a pair of parallel mounting grooves, and the pair of flanges is a pair of parallel flanges.

74. (Cancelled)

75. The combination of claim 73 wherein the at least one rechargeable battery cell comprises at least five series electrically connected, individual, rechargeable, cylindrical battery cells arranged in a plurality of rows and housed inside of the battery casing.

76. The combination of claim 75 wherein the battery casing comprises two halves joined together, and each of the halves forms approximately a half of the top portion and approximately a half of the bottom portion.

77. The combination of claim 75 wherein when the rechargeable battery is mounted on the housing, a majority of the top portion is covered by the housing, and side portions of the battery casing and the bottom portion are not covered by the housing.

78. The combination of claim 77 wherein the housing comprises a handgrip portion with a direction of elongation and the direction of sliding is not generally parallel to the direction of elongation.

79. The combination of claim 77 wherein the housing comprises a handgrip portion with a direction of elongation and the direction of sliding is generally perpendicular to the direction of elongation.

80. A rechargeable battery according to claim 29, wherein a longitudinal axis of the handgrip portion intersects the battery receiving portion and the battery housing when the battery is attached to the drive assembly.

81. The rechargeable battery of claim 50 wherein the other of a pair of flanges or a pair of mounting grooves is formed on the top portion of the battery casing.

82. The rechargeable battery of claim 81 wherein the negative battery contact and the positive battery contact are positioned on the top portion of the battery casing between the other of a pair of flanges or a pair of mounting grooves.

83. The rechargeable battery of claim 54 wherein the other of a pair of flanges or a pair of mounting grooves is formed on the top portion of the battery casing.

84. The rechargeable battery of claim 83 wherein the negative battery contact and the positive battery contact are positioned on the top portion of the battery casing between the other of a pair of flanges or a pair of mounting grooves.

85. The tool of claim 63 wherein the housing further comprises a motor portion attached to a top end of the handgrip portion opposite the handgrip portion's bottom end, and wherein a longitudinal axis of the handgrip portion intersects the motor portion and the battery receiving portion and the battery casing when the battery is attached to the housing.

86. The tool of claim 85 wherein the at least one rechargeable battery cell comprises at least five series electrically connected, individual, rechargeable, cylindrical battery cells arranged in a plurality of rows and housed inside of the battery casing.

87. The tool of claim 86 wherein the battery cells are arranged in three rows of at least two battery cells per row.

88. The tool of claim 87 wherein the battery casing comprises a top portion and an opposite bottom portion, the bottom portion having a substantially flat bottom surface and each of the longitudinal axes of the battery cells is parallel to the bottom surface.

89. The tool of claim 87 wherein a slot is formed in the top portion of the battery casing adapted to receive a blocking member mounted on the housing for releasably securing the rechargeable battery on the housing.

90. The tool of claim 87 wherein the pair of flanges or the pair of mounting grooves that is formed on the battery casing is formed on a top portion of the battery casing opposite a bottom portion with a generally flat bottom surface.

91. The tool of claim 87 wherein the battery contacts are positioned on the top portion of the battery casing between the pair of flanges or the pair of mounting grooves that is formed on the battery casing.

92. The tool of claim 63 wherein the battery casing further comprises a top portion and an opposite bottom portion, the bottom portion having a substantially flat bottom surface that is parallel to the direction of engagement, and wherein the pair of flanges or the pair of mounting grooves that is formed on the battery casing is formed on the top portion of the battery casing.

93. The tool of claim 92 wherein a slot is formed in the top portion of the battery casing adapted to receive a blocking member mounted on the housing for releasably securing the rechargeable battery on the housing.

94. The tool of claim 92 wherein the battery contacts are positioned between the pair of flanges or the pair of mounting grooves that is formed on the battery casing.

95. The tool of claim 94 wherein the battery contacts and the battery terminals comprise a substantially flat plate member having opposite side surfaces, and resilient deflecting members which engage the opposite side surfaces of the plate member.

96. The tool of claim 92 wherein the electric motor drives a planetary gear transmission, and the planetary gear transmission drives a drive spindle adapted to mount a drill chuck.

97. The tool of claim 96 wherein the rotary axis of the electric motor is parallel to the direction of engagement.

98. The tool of claim 63 wherein:

the battery terminals each comprise a substantially flat plate member having opposite side surfaces; and

the battery contacts each comprise a pair of resilient deflecting members adapted to contact each of the side surfaces of a respective battery terminal.

99. The combination of claim 71 wherein:

the blocking member is movable between a release position and a latched position with a spring biasing the blocking member toward its latched position;

the blocking member comprises a chamfered end; and

the blocking member is cammed into the release position by the chamfered end contacting the battery casing when the rechargeable battery is being attached to the powered tool, and the blocking member is biased by the spring into the latched position to engage the slot when the rechargeable battery is fully attached to the powered tool.